

## **Cleanability and sanitisation of sustainable ceramic tiles**

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The recent health emergency due to the Covid-19 pandemic has pushed for higher standards of healthiness in environments, in relation to the risk of surface contamination.

In general, porcelain stoneware tiles are already known as surfaces that are easy to clean and, consequently, to sanitise. But what happens if the composition of the mix changes and an innovative high recycled content mix is used? And also, what is meant by sustainable ceramic tiles?

In this work, the path towards sustainable ceramic tiles with a high recycling content is shown on the basis of a research project carried out in synergy with a ceramic company. In detail, all important milestones are considered: applied research at laboratory level, technology transfer on a pre-industrial scale, pilot production in the industrial plant, actual industrial production and product certification. Only when all these steps are successfully completed, the process is consolidated, innovation becomes 'practical' and the concrete benefits of sustainability (social, environmental and economic) can be achieved.

Cleanability was assessed according to the stain resistance test (ISO 10545-13) and other protocols, comparing traditional porcelain stoneware surfaces with those with a high recycled content.

The results showed that the attitude to cleaning and, consequently, to sanitising are related to the microstructure and surface texture rather than to the composition of the ceramic body. In conclusion, sustainable ceramic tiles with high recycled content can, like traditional ones, achieve high technical performance making them suitable for different destination environments.